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# PATENT SPECIFICATION

340.466

Application Date: May 26, 1930. No. 16,123/30.

Complete Accepted: Jan. 1, 1931.

## COMPLETE SPECIFICATION.



### Improvements in or relating to Plumbers' Pipe Cramps.

We, CRAMPTON BROTHERS, LIMITED, a Company incorporated under the Laws of Great Britain and Northern Ireland, of 29, Hollis Croft, in the City of Sheffield, and FREDERICK HARRY BURGON, a British Subject, of the same address, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to plumbers' pipe cramps for use in holding the ends of two pipes or similar objects together while they are united by solder or brazing or the like, of the kind comprising a straight or other shaped bar or tube to which anchor arms are attached by means of jaws at one end, said anchor arms being slidable along the bar and being formed at the outer or free ends with sockets to carry the ball ends of cramping arms which grip the tube or other article to be operated upon and being provided with tightening means for retaining them in any desired position on the bar, the object of the present invention being to provide a more efficient device of this type.

According to this invention a pipe soldering cramp of greater efficiency is obtained by the following improvements.

The cramping arms comprise two approximately symmetrical members the lower ends of which are provided with two hollow spherical faces, which, when they are in situ in their socket form the ball of the ball and socket joint between the cramping arms and anchor arms. To facilitate the opening of these cramping arms a spring is placed between them, preferably within the hollow ball, in such a manner as to force the jaws open, and a wing nut or the like means is provided to close the jaws upon the pipe to be held. This spring also constitutes a frictional grip on the ball and socket and anchoring joints.

Where wing nuts or the like tightening means are provided on our improved pipe soldering cramps, surfaces against which they bear (which, owing to the varying angular opening of the arms, are never at right angles to the axes of the bolts

on which the wing nuts or like tightening devices are mounted) are made convex or spherical so as to minimise friction between the wing nuts or the like and the faces of those parts of the cramping arms upon which they operate.

The jaws of the anchor arms are strengthened by means of rib and tongue reinforcements, and the jaws of the cramping arms are strengthened in a similar manner.

Connected between the cramping arms and the anchor arms is a link, divided longitudinally and pivoted by ball and socket joints to the anchor arms. By a similar ball and socket joint between the link and the cramping arms complete universal movement of the arms is obtained instead of the relatively limited movement obtained when the cramping arms are mounted directly on the anchor arms. Wing nuts or the like tightening means permit the anchor arms, link and cramping arms to be rigidly and/or elastically held in any desired position, and spring washers are placed behind the wing nuts on the transverse screws fitted to the anchor arms and links so as to aid frictional grip on the ball and socket joints and anchoring joints.

Referring to the drawings filed herewith:—

Fig. 1 is an elevation of our improved pipe cramp;

Fig. 2 is an end view of Fig. 1; and

Fig. 3 is a perspective view of the two cramping arms, separated in order clearly to show their construction.

A plumbers' pipe cramp comprises a bar or tube *a* which may either be straight, as shown in the drawings, or bowed. Anchor arms *b* are mounted slidably upon the bar or tube *a* and are formed at their outer or free ends with sockets *c* to carry the ball ends *d* of the cramping arms *e* which grip the pipe or other article to be operated upon. The anchor arms *b* are provided with means, such as a bolt and wing nut *b<sup>1</sup>* for tightening them on the bar or tube *a* and at the same time gripping the cramping arms *e*, a spring washer *f* being placed between the tightening bolt and wingnut, thereby

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increasing the grip of the anchor arms upon the bar *a* and cramping arms *e*.

The cramping arms *e* comprise two approximately symmetrical members *g* 5 and *h* which have two hollow spherical faces *i* and *j* which, when they are in situ in their socket, form the ball ends *d* of the ball and socket joint between the cramping arms and anchor arms. To 10 facilitate the opening of the cramping arms *e* a spring *k* is placed between them as shown in Fig. 3.

Where wing nuts or like tightening means are provided on our improved 15 pipe soldering cramp, the surfaces *m* against which the wing nuts bear, are made convex or rounded to minimise friction.

The jaws of the anchor arms *b* are 20 strengthened by means of rib and tongue reinforcements *n* and the jaws of the cramping arms *e* are strengthened at *o* in a similar manner.

Connected between the cramping arms *e* 25 and anchor arms *b* is a link *p* divided longitudinally and pivoted to the anchor arm at *q* by a ball and socket joint, and by a similar joint *r* on the cramping arm, complete universal movement of 30 the cramping arms is thus obtained.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to 35 be performed, we declare that what we claim is:—

1. In plumbers' pipe cramps of the type described, the provision of a link between the cramping arms and the anchor arms, said link being divided longitudinally and being pivoted to the anchor arms at one end by a ball and socket joint the cramping arms being pivoted in a similar manner to the other end of the link, a wing nut and spring washer being provided for rigidly and/or elastically 40 holding the cramping arms in any desired position, rounded or convex faces being provided on the cramping arms upon which the wing nuts or the like operate in connection with the screw or bolt or the like which controls the opening of the cramping arms. 45

2. In plumbers' pipe cramps according to claim 1, the provision of a spring 50 within the cramping arms for the purpose of holding them normally apart, means such as a wing nut or the like being provided for tightening them upon the article to be held. 55

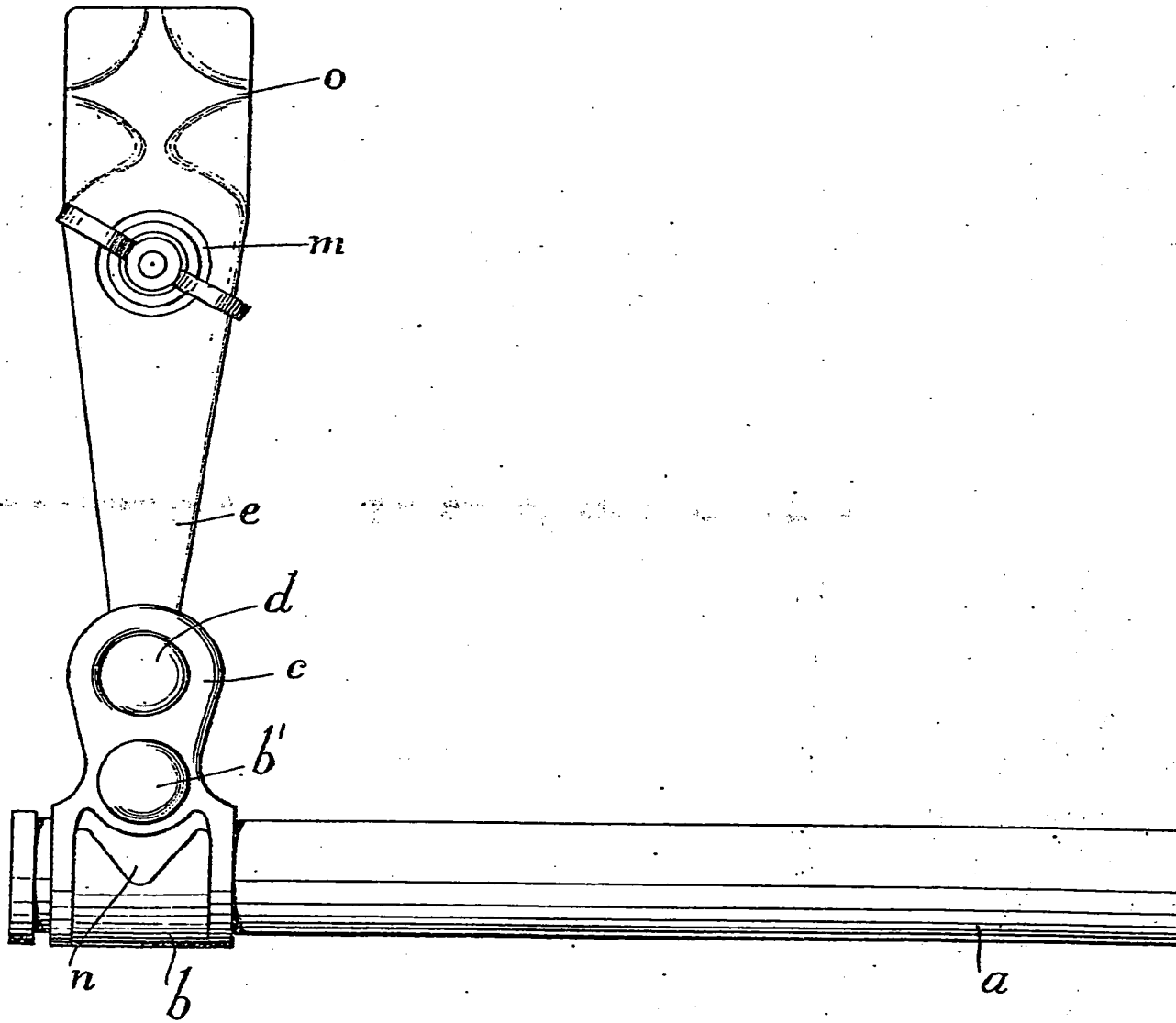
3. A plumbers' pipe cramp according to the preceding claims constructed and 60 arranged substantially as described with reference to the accompanying drawings.

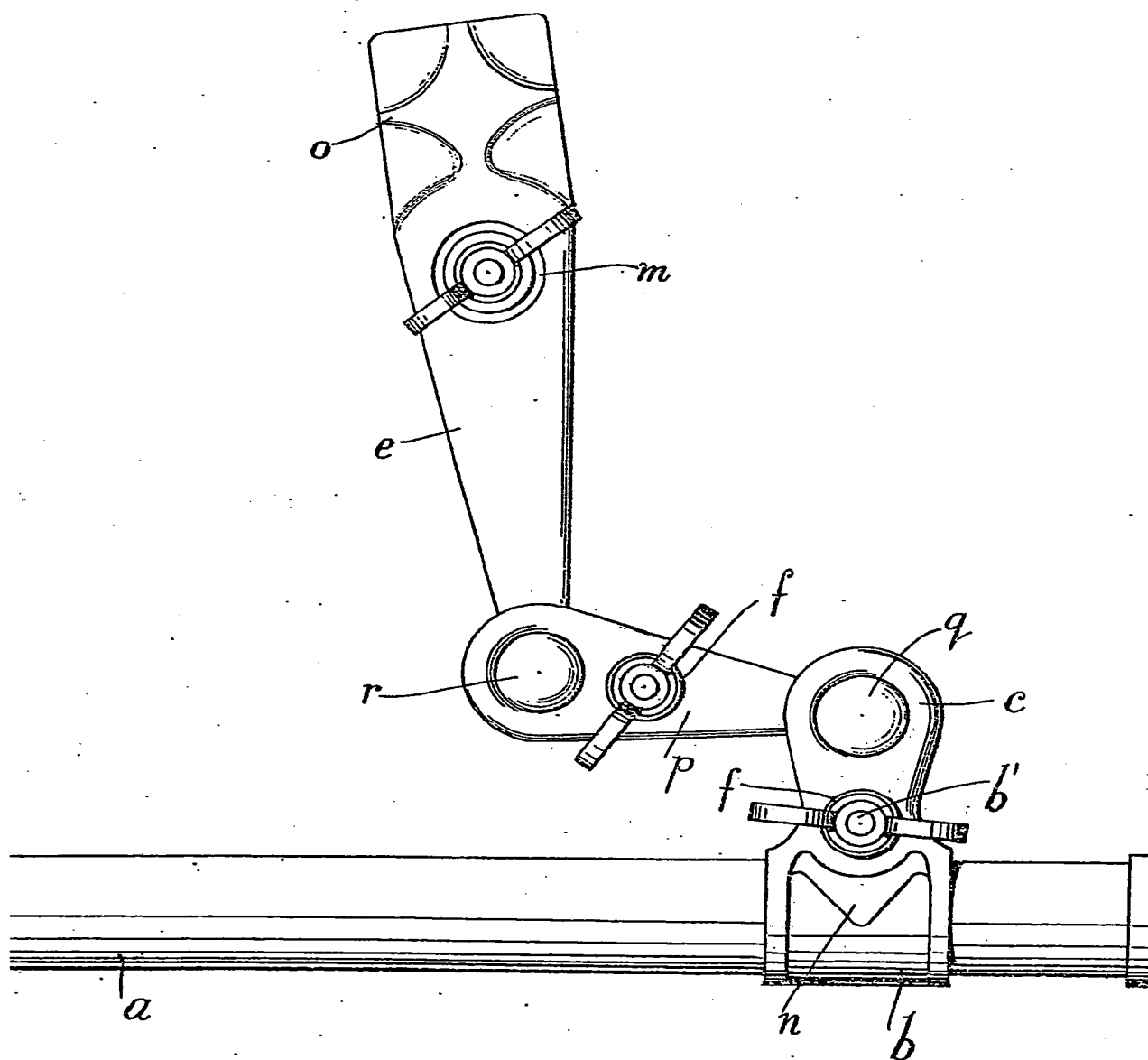
Dated this 24th day of May, 1930.

R. F. DRURY & SONS,  
Agents for Applicants,  
24, Norfolk Row, Sheffield.

FIG. 1.

*[This Drawing is a reproduction of the Original on a reduced scale.]*





[This Drawing is a reproduction of the Original on a reduced scale]

Fig. 1.

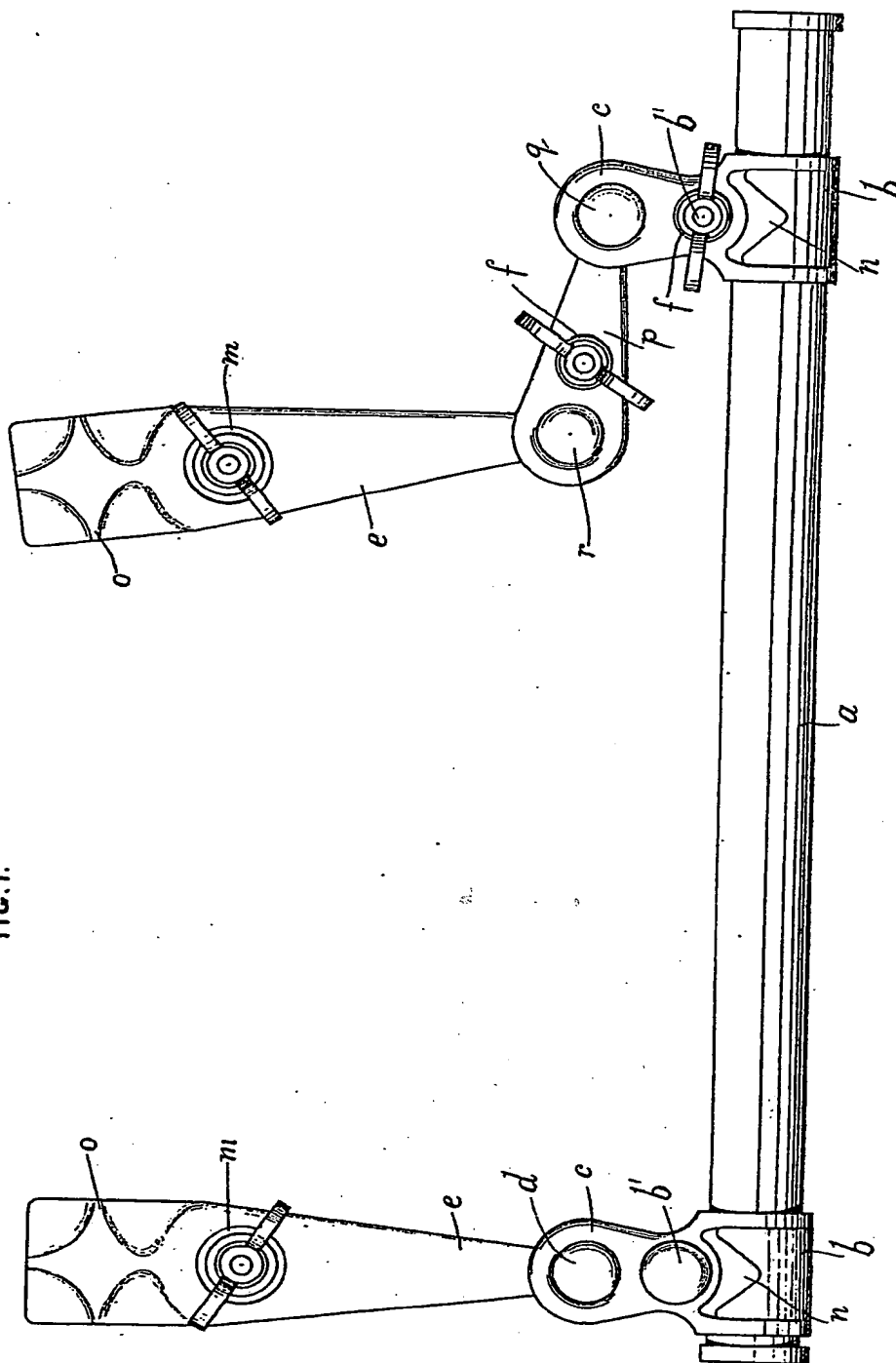


FIG. 2.

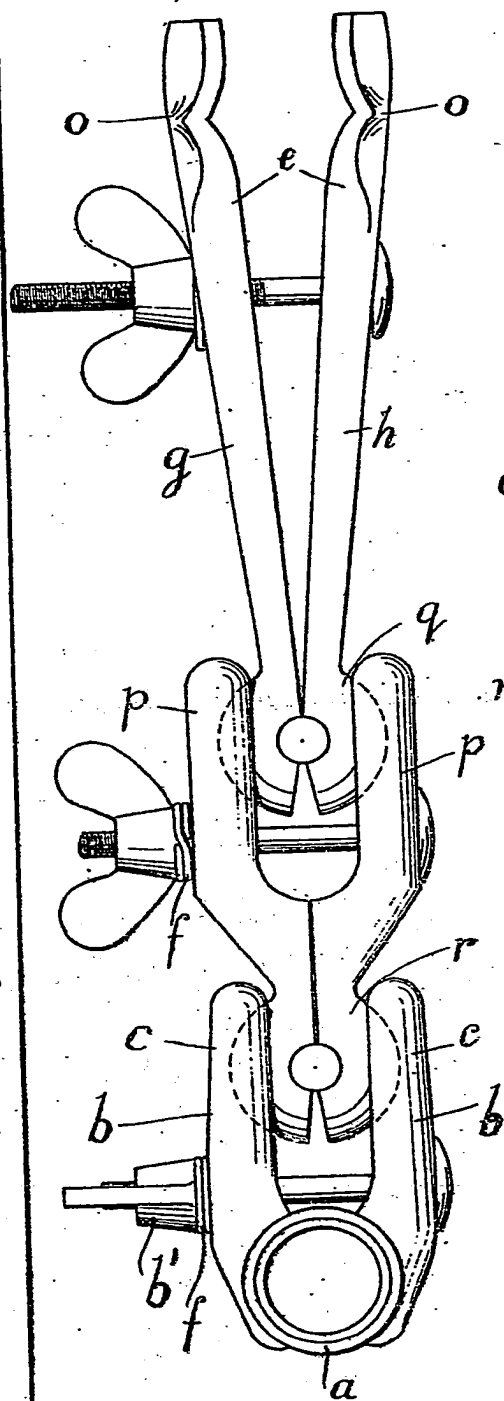
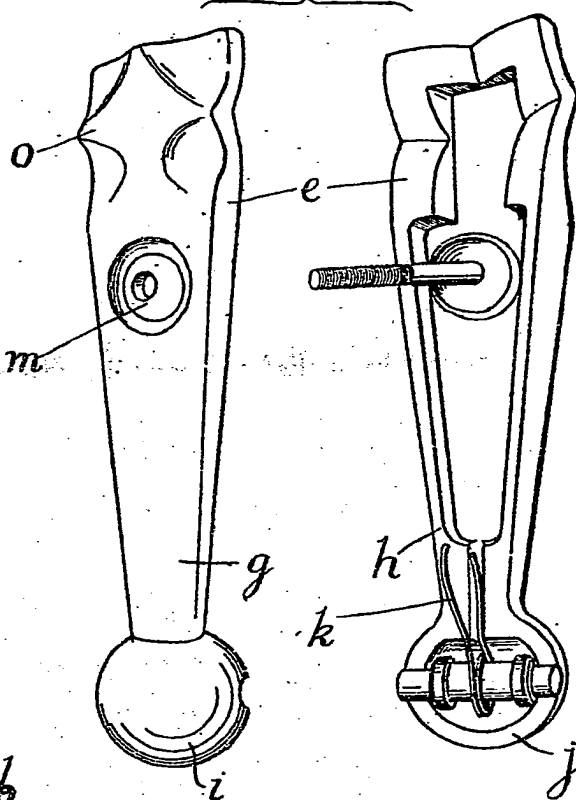


FIG. 3.



[This Drawing is a reproduction of the Original on a reduced scale.]